

AMENDMENTS TO THE SPECIFICATION

Please amend the 2nd full paragraph on page 7 of the Application as follows:

Each of the tungsten electrodes 26A and 26B is constituted such that treated tungsten (tungsten to which thorium oxide is doped by several %) is the base material. Each of outer surfaces 26Aa and 26Ba of the tungsten electrodes 26A and 26B is subjected to a strong electrolytic polishing process. Thus, the arithmetical mean deviation of profile Ra of each of the outer surfaces 26Aa and 26Ba is ~~3 mm~~ 3 μ m or smaller (note that the cut-off value $\lambda_c = 0.8$ mm and the evaluated length $l_n = 4$ mm). Leading end surfaces 26Ab and 26Bb of the tungsten electrodes 26A and 26B are barrel-polished. The corner R of each of the leading end surfaces 26Ab and 26Bb is about 0.04 mm to about 0.06 mm to obtain a satisfactory discharge characteristic.

Please amend the 2nd full paragraph on page 8 of the Application as follows:

As shown in Fig. 3, the arithmetical mean deviation of profile Ra of the outer surface 26Ba is made to be ~~3 mm~~ 3 μ m or smaller. Therefore, when the tungsten electrode 26B has been pinch-sealed to the pinch seal portion 20b2, the two element are engaged to each other with small pits and projections. Hence it follows that undesirable retention of great compressive stress in a region adjacent to the joint surface between the pinch seal portion and the tungsten electrode experienced with the conventional structure can be prevented.

Please amend the 2nd full paragraph on page 15 of the Application as follows:

In this embodiment, the arithmetical mean deviation of profile Ra of the outer surfaces 26Aa and 26Ba of the tungsten electrodes 26A and 26B is made to be 3 μm or smaller.

Moreover, the portion 20b2' in which the pinch seal is formed is heated to 2000°C or higher when the main pinch sealing process is performed. As can be understood from Tables 1 and 2, it is preferable that the arithmetical mean deviation of profile Ra is 2 ~~mm~~ μm or smaller.

Moreover, it is preferable that the temperature is made to be 2100°C or higher. In the foregoing case, the life of the arc tube 16 can furthermore be prolonged.